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Evaluation of the CMSP Care Management Pilot

Final Report

Prepared for: CMSP Governing Board

Submitted by: The Lewin Group

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I. Introduction

A. Overview of CMSP Care Management

Beginning October 1, 2007, Anthem Blue Cross began the Care Management Pilot Project (CM Pilot) at the direction of the County Medical Services Program (CMSP) Governing Board. Although Blue Cross had been previously providing care management services to CMSP members, the CM Pilot was intended to enhance the level of care management services provided.

With additional CMSP funding, Blue Cross enhanced its care management staffing model for the CM Pilot, establishing a dedicated Care Management Unit composed of:

- Two Registered Nurse (RN) care managers (funded by Blue Cross)
- Four additional RN care managers exclusively dedicated to the provision of services under the CM Pilot (funded by CMSP); one of these RN care managers was responsible for the identification, review, and referral of CMSP members with potential disabilities to the CMSP Disability Referral Program
- Two social workers exclusively dedicated to the provision of services under the CM Pilot (funded by CMSP)

Targeted Populations

The CM Pilot is open to CMSP members with aid codes of 84, 85, 88, 89, and 8F/53. Members with an aid code of 50 (emergency services only) are excluded from the project. The pilot is designed for members in eligible aid categories with the following characteristics:

- Members with chronic and/or high cost medical conditions
- Members who frequently utilize hospital emergency departments
- Members whose conditions are likely to make them eligible for Medi-Cal due to disability

Blue Cross referred for participation in the CM Pilot members who were hospitalized in an acute care facility and who required complex coordination of discharge planning needs. Blue Cross also identified potential CM Pilot participants by reviewing diagnostic information, pharmacy utilization data, hospital readmission data, and other methods. Finally, members could self-refer to the project or they could be referred by a provider or family member.

CM Pilot Services

The CMSP Governing Board charged Blue Cross with providing the following services to CM Pilot members over the course of the two-year pilot:

- Timely and proactive coordination of services for members with complex medical conditions or health care risks
- Collaboration and communication with the member and health care providers

- Development of a plan of care in collaboration with the member and provider that addresses the member's health care needs and provides for ongoing monitoring of the member's progress toward established goals
- Identification of available community resources with the goal of promoting quality outcomes (e.g., legal, financial, IHSS, disability, mental health)
- Assistance to help members navigate the health care system
- Coordination and management of referrals to the CMSP Disability Referral Program, including referrals for presumptive disability under Medi-Cal
- Distribution of information and education to members and their families that promotes self-management
- Education and involvement of the member and the family in the coordination of services
- Assurance of timely interventions that increase effectiveness and efficiency of care/services to the member

These care management services were primarily delivered through telephonic, rather than in-person, communication.

The initial two-year period for the CM Pilot ended September 30, 2009, although the contract with Anthem Blue Cross has been extended to maintain the program pending the completion of this evaluation. During the extension period Anthem Blue Cross opted to reduce the social worker staffing from two positions to one.

B. CM Pilot Evaluation Approach

This evaluation of the CM Pilot is designed to assess evidence of the effectiveness of care management services delivered to CMSP members. The evaluation is not intended to produce a determination of direct causality with regard to the intervention and intended outcomes. Our primary data sources were CMSP claims data, CMSP eligibility data, and reports from Blue Cross specific to the CM Pilot. We also interviewed staff from the Care Management Unit in April 2010.

The evaluation assesses whether participation in the CM Pilot correlates with increased utilization of primary care services, reduced frequency and duration of hospital admissions, decreased emergency department utilization, and increased numbers of members appropriately referred for Medi-Cal. We based our evaluation on the performance metrics identified by the CMSP Governing Board (Exhibit 1).

Exhibit 1: Performance Metrics

CM Pilot Enrollment	▪ Increased enrollment in the CM Pilot
Primary Care	▪ Increased number of primary care visits
Frequency and Duration of Inpatient Hospital Admissions	▪ Decreased inpatient admissions ▪ Decreased inpatient bed days
Follow-up and Readmissions	▪ Increased visit rate to appropriate primary care and specialty providers following inpatient hospital discharge ▪ Decreased inpatient readmissions, defined as members being readmitted to inpatient care within 30 calendar days of initial discharge date
Emergency Department Utilization	▪ Reduced use of emergency department for non-emergency conditions
Disability Referrals	▪ Increased proportion of presumptive disability referrals forwarded to the CMSP Administrative Office that result in a disability determination by the State

II. Care Management Participation

A. CM Pilot Enrollment

Blue Cross opened 2,066 cases during the course of the two-year pilot project. As depicted in Exhibit 2 below, the number of CMSP members served through the CM Pilot was small during the initial months and peaked in the period from October 2008 to March 2009. The low numbers in the early months are attributable to the fact that the staff for the Care Management Unit were not yet fully in place during the first months of the CM Pilot. The decline that followed the peak in the October 2008 to March 2009 period is likely due to changes in how Blue Cross staff categorized participation in the CM Pilot. According to staff in the Care Management Unit, the overall workload was relatively consistent throughout the second year of the pilot, despite the apparent decrease in enrollment.

The 2,066 cases represent less than two percent of all CMSP members; we identified in the CMSP eligibility files 128,700 individuals with at least one month of CMSP eligibility between October 1, 2007 and June 30, 2009. All cases presented in the exhibit below are for CM Pilot cases started on or after October 1, 2007.

Exhibit 2: Opened, Closed, and Ongoing CM Pilot Cases
(through September 30, 2009)

	October 2007 to March 2008	April 2008 to September 2008	October 2008 to March 2009	April 2009 to September 2009	Overall (October 2007 to September 2009)
Cases Opened in Time Period	30	260	1,238	538	2,066
Cases Closed in Time Period	0	0	1,086	836	1,922
Cases Ongoing at End of Time Period	30	290	442	144	144
Number of CMSP Members in CM Pilot for at Least One Day During the Time Period	30	290	1,528	980	

Source: Lewin analysis of Blue Cross roster of CM participants

Blue Cross assesses potential CM Pilot participants and assigns one of four acuity levels:

- Monitoring – member is at risk for a potential problem
- Level 1 – member is currently stable, but had a recent illness or injury
- Level 2 – member experienced a recent acute episode of illness or injury or exacerbation of chronic disease; may be unstable and at risk of readmission
- Level 3 – member experiencing a severe problem or complication with a major change in functional capability

Over 85 percent of CM Pilot cases were assigned to the "monitoring" category on enrollment. The percentage of new enrollees in the monitoring category increased after the first year of the program.

Exhibit 3: Acuity Levels for Newly Opened Cases

Cases Opened During:	October 2007 to March 2008	April 2008 to September 2008	October 2008 to March 2009	April 2009 to September 2009	Overall (October 2007 to September 2009)
Level of Care Management					
Monitoring	5	169	1,143	442	1,759
Acuity Level 1	5	14	9	11	39
Acuity Level 2	11	23	33	59	126
Acuity Level 3	9	53	51	25	138
Missing	0	1	2	1	4
Total	30	260	1,238	538	2,066

Source: Lewin analysis of Blue Cross roster of CM participants

Exhibit 4 shows the lengths of participation in the CM Pilot for closed cases. There are several reasons to terminate enrollment in the CM Pilot, including attainment of the goals in the participant's care plan, lack of continued participant engagement, and loss of CMSP eligibility.

The data in Exhibit 4 emphasize that the care management services primarily function as a short-term intervention. Over the course of the two-year pilot, 93 percent of closed cases were active for fewer than six months; 38 percent were active for less than one month. (As we describe later in this report, we exclude from our subsequent analysis individuals enrolled in the CM Pilot for less than one month.)

Exhibit 4: Length of CM Pilot Participation for Closed Cases

	Period in which cases closed				
Length of time in the CM Pilot	**October 2007 to March 2008**	**April 2008 to September 2008**	**October 2008 to March 2009**	**April 2009 to September 2009**	**Overall (October 2007 to September 2009)**
One month or less	0	0	452	288	740
Between 1 and 3 months	0	0	323	228	551
Between 3 and 6 months	0	0	257	246	503
Between 6 and 12 months	N/A	0	47	54	101
Greater than 12 months	N/A	N/A	7	20	27
Average Length of Time (days)	No closures	No closures	53	69	61

Source: Lewin analysis of Blue Cross roster of CM participants

III. Service Utilization

To assess the impact of the CM Pilot on the utilization of CMSP services, we identified CM Pilot participants through a roster provided by Blue Cross and matched those participants to CMSP eligibility and claims databases.[1] Where we based our analyses on claims data, we used claims paid through January 2010 and only reviewed services delivered on or before June 30, 2009. The six months between June 2009 and January 2010 are necessary to allow time for provider billing and claims adjudication to ensure that the claims records are complete.

As demonstrated in Exhibit 4, many CM Pilot participants were enrolled in the program for a very short period of time, sometimes just one day. Although some of these cases represented very brief and successfully completed interventions, many of these short-tenure cases were individuals that Blue Cross identified for CM participation but who declined to participate or who never responded to communication from Blue Cross.[2] These cases probably do not present us any opportunity to assess the impact of the care management intervention. Therefore, we focused our claims analysis on 851 CMSP members who were enrolled in the CM Pilot for *at least one continuous month* between October 1, 2007 and June 30, 2009.[3]

Attachment A presents the number of unique CM Pilot participants and associated member months. We also show how these numbers were impacted by removing the members in care management for less than one month.

We examined the CMSP services used by participants in the CM Pilot during three different periods: prior to enrollment in the CM Pilot, during enrollment in the CM Pilot, and post disenrollment from the CM Pilot. We define each of these groups below.

Exhibit 5: Group Definitions[4]

Group	Criteria for Inclusion
Prior to enrollment in the CM Pilot	Data associated with members before their enrollment in the CM Pilot; no data are included prior to October 1, 2007 or the member's effective date of eligibility, whichever is later
During enrollment in the CM Pilot	Data associated with members during their enrollment in the CM Pilot; data between October 1, 2007 (or the member's effective date of eligibility, whichever is later) and June 30, 2009
Post disenrollment from the CM Pilot	Data associated with members between their CM Pilot disenrollment date and June 30, 2009

In the exhibits below, we annualize the units of service utilization to more easily compare data between each of the three periods, since – for example – a member may be in the 'pre CM Pilot disenrollment' group for one year and then be in the 'during CM Pilot enrollment' group for three months. Similarly, we present all service utilization in terms of units per 1,000 members because there are slightly different numbers of people in each group. Researchers commonly present health service utilization data on a per-1,000-members basis instead of per-member basis when analyzing services that are infrequently used by the general population (e.g., inpatient hospital admissions).

In each of the exhibits, we also present data for the entire CMSP population to illustrate the differences between CM Pilot participants and the broader population and to show any underlying trends in CMSP service utilization. Because we only used claims data for service dates through June 30, 2009, we did not have two complete years of claims data after the start of the CM Pilot. This raised the possibility that we could misinterpret annual trends, especially where service utilization fluctuates seasonally (e.g., hospitalization rates rise during flu season). Therefore, we present year-over-year comparisons between the periods October 2007 to June 2008 and October 2008 to June 2009.

A. Primary Care

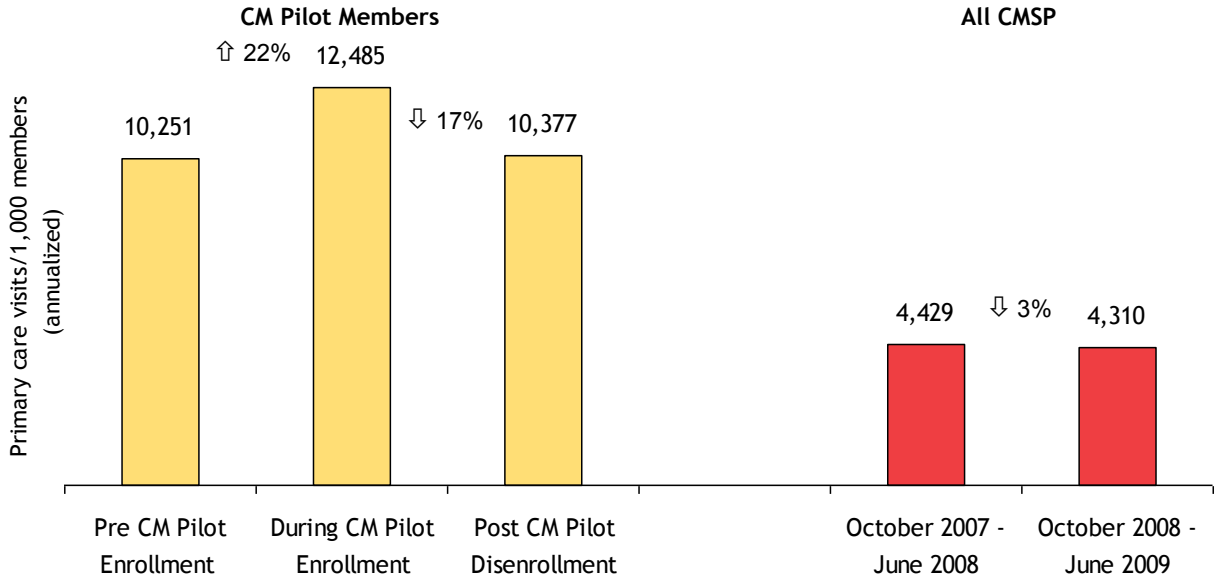
One of the objectives of the CM Pilot was to promote appropriate utilization of primary care services, under the premise that greater use of primary care would improve health outcomes and decrease inpatient hospital admissions. The Care Management Unit promotes primary care visits through numerous mechanisms, including post-hospitalization follow-up calls to CM participants, assistance in identifying providers that accept CMSP reimbursement, education on the importance of routine primary care, and direct contact with providers (e.g., advocating with a clinic to see a CM participant on short notice.)

Exhibit 6 below presents our analysis of primary care utilization before, during, and after participation in the CM Pilot.[5] For reference, we also present data on the broader CMSP membership, where the year-over-year change in primary care utilization was a decline of three

percent. We identified primary care services through billing codes but did not restrict the analysis to a specific provider type. Therefore, some of the primary care services could have been delivered by specialists.

Two factors stand out in Exhibit 6. First, as we would expect based on the target population for the pilot, rates of service utilization among CM Pilot participants are much higher than for the entire CMSP population. Second, compared to the period immediately before CM Pilot enrollment, the number of primary care visits per 1,000 CM Pilot participants increased by 22 percent. After disenrollment from the CM Pilot, utilization of primary care services declined by 17 percent, although utilization remained higher after disenrollment than in the pre-enrollment period.

Exhibit 6: Primary Care Visits per 1,000 Members



B. Frequency and Duration of Inpatient Hospital Admissions

Exhibit 7 below shows the number of inpatient admissions per 1,000 members for each of the CM Pilot periods.[6] For reference, we also show admissions per 1,000 for the entire CMSP population. As with primary care utilization, rates of inpatient utilization among CM Pilot participants are much higher than for the entire CMSP population. However – while the use of primary care services increased for CM participants – inpatient admissions *decreased* by 40 percent. That decline continued even after disenrollment from the CM Pilot.

Exhibit 7: Inpatient Admissions per 1,000 Members

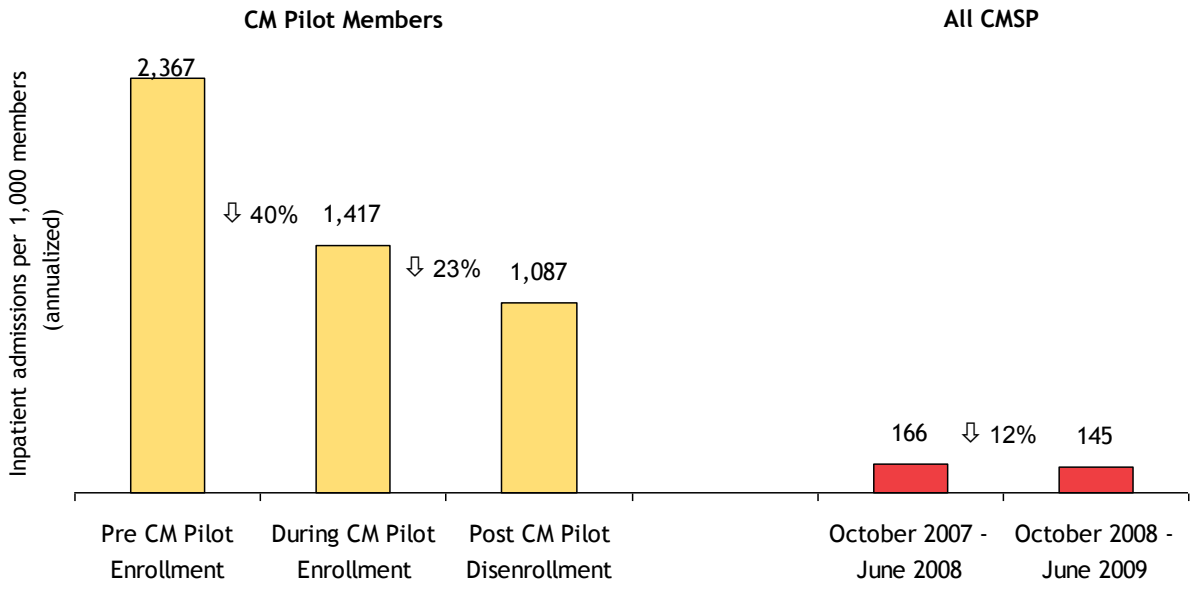


Exhibit 8 shows that CM Pilot members experienced an even more dramatic decrease in inpatient bed days (57 percent) while they were enrolled in the CM Pilot. Inpatient bed days for the entire CMSP population also declined between the first and second evaluation year, although to a far lesser extent.

Exhibit 8: Inpatient Bed Days per 1,000 Members

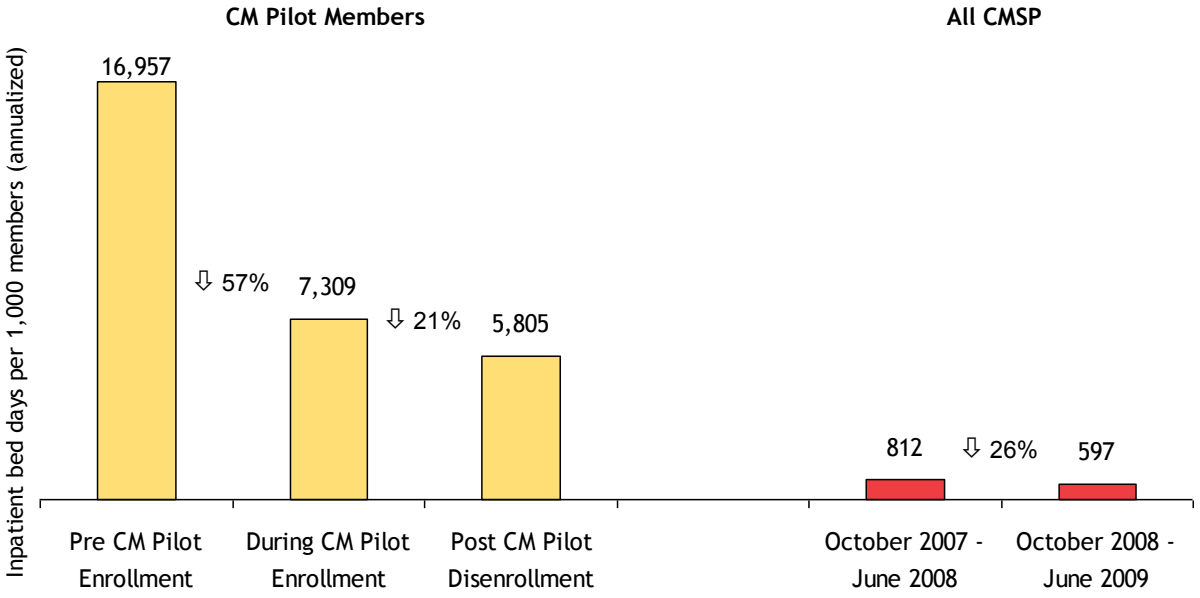
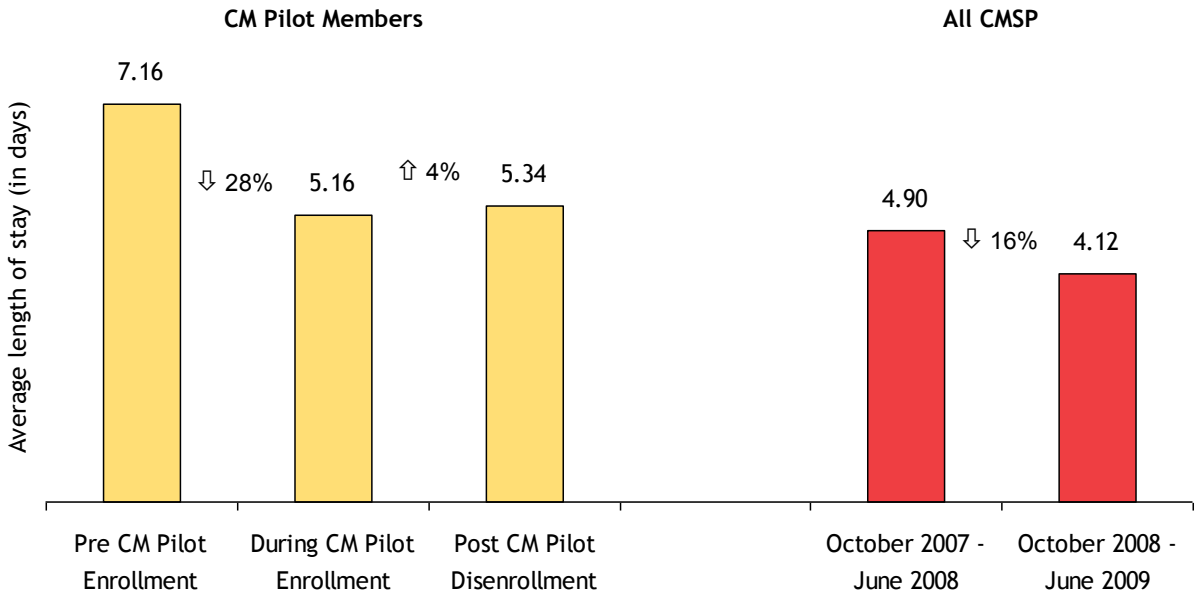


Exhibit 9 shows that average hospital length of stay declined by two full days per admission after enrollment in the CM Pilot, from 7.16 days to 5.16 days. Length of stay increases slightly

after disenrollment. The slight increase could be due to the end of the intervention or could be attributable to differences in acuity among those who stay in the CM Pilot for the longest lengths of time.

Exhibit 9: Average Hospital Length of Stay



C. Readmissions

We examined data on hospital readmissions before, during, and after CM Pilot participation. However, the short window of time during which most participants were enrolled in the CM Pilot ultimately caused us to question the validity of our findings related to hospital readmissions. Therefore, we do not include data on readmissions in this report.

D. Emergency Department Utilization

CM Pilot participants are more frequent users of the emergency department than the overall CMSP population (Exhibit 11).[7] However, participants had 25 percent fewer emergency department visits per 1,000 members while they while in enrolled in the CM Pilot than prior to CM Pilot enrollment.

Exhibit 11: Emergency Department Visits, per 1,000 Members

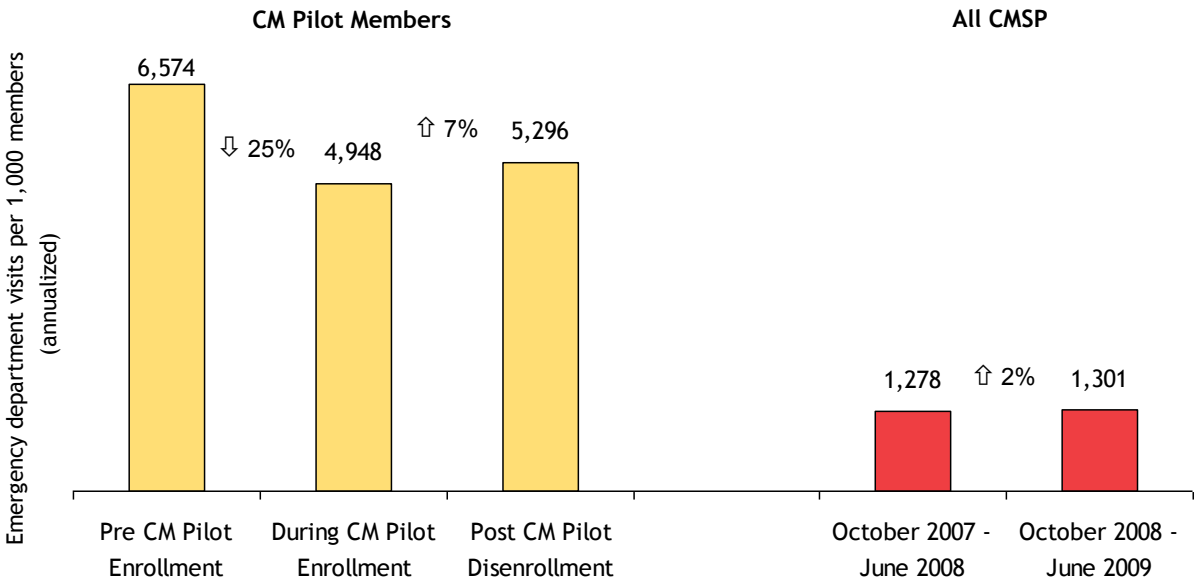
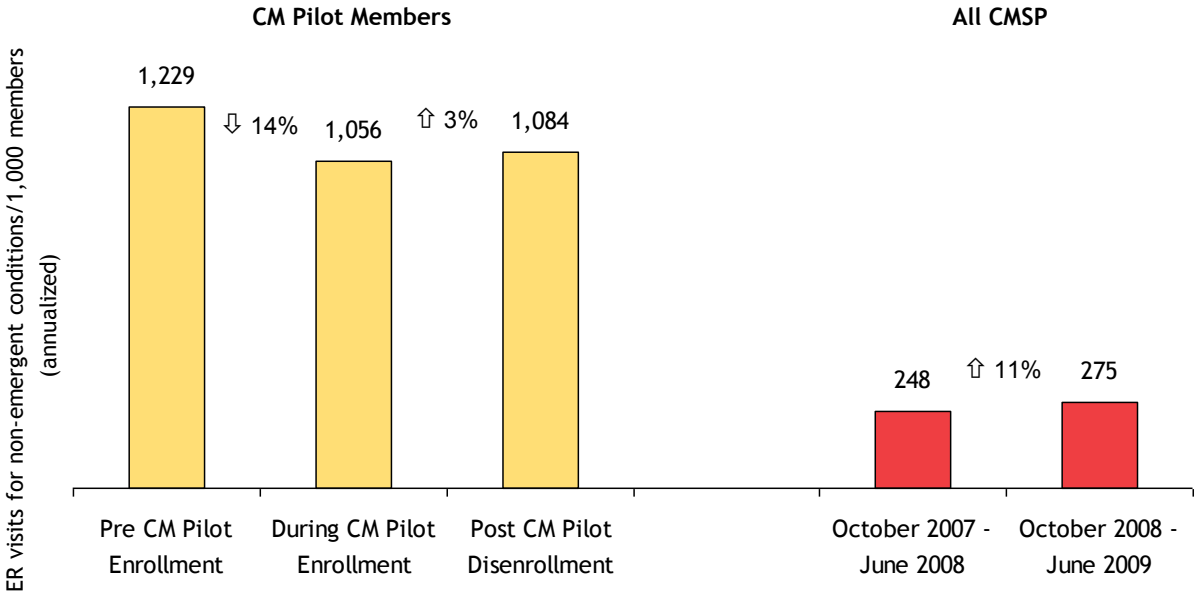


Exhibit 11 includes all emergency department visits. Exhibit 12 restricts the analysis to emergency department visits that were for conditions that Blue Cross has identified as "non-emergent."[8] CM Pilot participants show 14 percent less utilization of the emergency department for non-emergent conditions during CM enrollment.

Exhibit 12: Emergency Dep't Visits for Non-Emergent Conditions, per 1,000 Members



E. Disability Referrals

Another goal of the CM Pilot is to appropriately refer members and successfully transition them to Medi-Cal through the CMSP Disability Referral Program. Exhibit 13 presents data on referrals for disability determinations for three groups: CMSP members who were in the CM Pilot at the point of the referral, CMSP members who were not enrolled in the CM Pilot at the point of referral, and the entire CMSP membership (the sum of the prior groups).

Overall, during the two-year pilot, 235 CM Pilot members were referred for disability determination, of which 137 resulted in a disability determination (58 percent). Among members who were never enrolled in the CM Pilot, 2,199 disability referrals led to 1,097 successful disability determinations (50 percent). On the surface, this suggests that the CM Pilot was somehow better at making disability referrals than the rest of the CMSP program.

However, it is not clear how much the CM Pilot has impacted the overall disability referral rate. For the entire CMSP membership, the success rate of disability referrals has improved greatly over time. In our base year of October 2006 to September 2007, 30 percent of all referrals resulted in a successful disability determination. By the October 2008 to March 2009 period, the success rate had risen to 60 percent (the success rate for the most recent time period is lower, but – since disability processing can take six months or more – that is likely due to a higher proportion of cases that are still pending final determination). Since the increase in the success rate is not limited to the CM Pilot participants, it seems more likely that the improvements are primarily driven by CMSP policy and payment changes related to disability referrals.

Other factors complicate the interpretation of the data in Exhibit 13. For example, during 2009 the Care Management Unit changed the way it categorized participation in the CM Pilot. Initially, the unit automatically recorded all disability referral cases as CM Pilot participants, regardless of the individual's actual participation in the CM Pilot. When that practice ended in 2009, the unit counted fewer individuals as CM Pilot participants but may have still referred those cases for disability determinations. In our data, however, those referrals would not appear to be attributable to the CM Pilot because the individuals were never officially enrolled in the CM Pilot.

Exhibit 13: Disability Referrals

	Base Year: Oct 2006 to Sept 2007		October 2007 to March 2008		April 2008 to September 2008		October 2008 to March 2009		April 2009 to September 2009		Total CM Pilot: Oct 2007 to Sept 2009	
CM Pilot Members	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Number of Referrals that Resulted in a Disability Approval	N/A	N/A	3	50%	33	58%	96	60%	5	45%	137	58%
Number of Referrals that were Denied	N/A	N/A	0	0%	15	26%	39	24%	1	9%	55	23%
Number of Referrals with No Decision Recorded	N/A	N/A	3	50%	9	16%	26	16%	5	45%	43	18%
Total Referrals for CM Pilot Members	N/A	N/A	6		57		161		11		235	
Members Not Enrolled in the CM Pilot	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Number of Referrals that Resulted in a Disability Approval	379	30%	157	44%	279	50%	310	60%	351	46%	1097	50%
Number of Referrals that were Denied	194	15%	50	14%	86	15%	97	19%	99	13%	332	15%
Number of Referrals with No Decision Recorded	701	55%	146	41%	196	35%	108	21%	320	42%	770	35%
Total Referrals for Members Not Enrolled in the CM Pilot	1274		353		561		515		770		2199	
Total Referrals	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Number of Referrals that Resulted in a Disability Approval	379	30%	160	45%	312	50%	406	60%	356	46%	1234	51%
Number of Referrals that were Denied	194	15%	50	14%	101	16%	136	20%	100	13%	387	16%
Number of Referrals with No Decision Recorded	701	55%	149	42%	205	33%	134	20%	325	42%	813	33%
Total Referrals	1274		359		618		676		781		2434	

Source: Lewin analysis of CMSP disability referral records; ^Base Year provided for comparison purposes; *Referral only counted if the member was enrolled in the CM Pilot at the time of the referral

IV. Discussion and Conclusion

This report assessed the CM Pilot project using data reported by Blue Cross and by mining CMSP paid claims data. Our access to claims data allowed us to evaluate the overall service utilization experience of CM Pilot participants before CM enrollment, during CM participation, and after disenrollment. Our main findings – increases in utilization of primary care services and decreases in inpatient utilization – are consistent with the goals for the pilot project.

However, there were several methodological limitations to our work. Most importantly, we do not have a true control group from which to draw conclusions about causality from the CM intervention. Therefore, it is not clear to what extent the CM Pilot is solely responsible for the changes in service utilization. The central methodological consideration has to do with selection of CM Pilot participants: the intervention selected participants because of their exceptionally frequent use of hospital services and their exceptionally high levels of need. Evaluations of interventions than focus on exceptional cases are often affected by a phenomenon called "regression to the mean." In regression to the mean, extreme values at the initial point of measurement tend to become more "normal" at the second point of measurement. As an illustration, consider that the CMSP member with the greatest number of hospital admissions in any given month is more likely to have fewer admissions in the next month than he is to have more. Therefore, since repeated hospital admission was a common trigger for CM Pilot enrollment, we might see some decline in hospitalizations due to regression to the mean, even in the absence of any intervention. Deeper analysis related to this issue is beyond the scope of this evaluation, and establishing the types of randomized control trials necessary to fully account for this phenomenon would have raised serious ethical considerations and been prohibitively expensive to implement.

Limitations notwithstanding, the evidence to date suggests that the CM Pilot is generally meeting the goals for the initiative. Exhibit 14 summarizes the outcomes for the major performance metric evaluation areas.

Exhibit 14: Outcomes by Evaluation Area

	Evidence suggests the CM Pilot was successful	Evidence suggests the CM Pilot was unsuccessful	Evidence is unclear
Increase primary care visits	√		
Decrease frequency and duration of hospital admissions	√		
Decrease utilization of the emergency department for non-emergency conditions	√		
Increase the number of disability referrals resulting in a disability determination			√

Attachment A

Distribution of Unique CM Pilot Members by Time Spent in Groups
(through June 30, 2009)

	Prior to enrollment in CM Pilot	During enrollment in CM Pilot	Post disenrollment from CM Pilot
CM participants in each time period, *including* short-stay participants	1,299	1,300	932
Member months	10,693	2,262	3,122
Average length of time (in months)	8.2	1.7	3.3
CM participants in each time period, *excluding* short-stay participants	850	851	552
Member months	6,595	1,947	1,722
Average length of time	7.76	2.29	3.12

Reference Population: All CMSP Members
(through June 30, 2009)

	Oct 2007 – June 2008	Oct 2008 – June 2009
CMSP members	74,906	83,903
Member months	372,187	422,894
Average length of time (in months)	4.97	5.04

Technical Notes

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[1] Using reports from Blue Cross, we identified 2,066 unique individuals who began participation in the care management pilot project between October 1, 2007 and September 30, 2009. For the claims analysis, we limited our focus to the experience through June 30, 2009 to allow for sufficient claims run-out. We identified 1,825 individuals in the Blue Cross report who began care management between October 1, 2007 and June 30, 2009. Of those 1,825, we successfully matched 1,713 cases to CMSP eligibility data based on CMSP ID numbers. However, only 1,300 have valid months of CMSP eligibility during the project timeframe (the difference was likely due in large part to cases of retroactive Medi-Cal eligibility). We conducted our claims-based analyses on these 1,300 individuals and again on a smaller group of 851 individuals who were in the CM Pilot for at least one month. We present the latter group throughout this report. Analysis on the group of 1,300 is available upon request.

We also used the following selection criteria:

- Excluded participants with aid code 50 (12 individuals)
- Excluded participants whose ID number did not match from the Blue Cross care management reports to claims data (112 individuals)
- Excluded member months that were subsequently covered by Medi-Cal
- Excluded any months without CMSP eligibility as indicated by the PM 6 variable

[2] The Care Management Unit changed practices during 2009 to only report cases after the CMSP member expressed some level of interest in CM Pilot participation.

[3] If a member enrolled in the CM Pilot more than once during the above time period (e.g., enrolled in the CM Pilot, lost CMSP eligibility, regained CMSP eligibility, reenrolled in the CM Pilot), this evaluation only considers the first consecutive span of enrollment in the CM Pilot.

[4] The "during CM" group began on the first calendar day after the date of care management enrollment. The "post CM" group began on the first calendar day after the date of care management disenrollment.

[5] We defined primary care services as services billed through the following procedure codes: 99201-99215, 99341-99350, 99383-99387, or 99393-99494. We did not restrict these codes to any specific provider type.

[6] Claims data sometimes show admissions for the same individual that overlap or that follow end-to-end (i.e., a new admission on or before the date of discharge). We "re-shape" these claims to count them as single admissions.

[7] We defined emergency department claims as all paid institutional claims with revenue codes in the range 0450 to 0459.

[8] To identify non-emergent use of the emergency department, we used the limit class criteria employed currently by Anthem for their adjudication of CMSP claims for people in aid code 50.